IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. 10/786,980

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METHOD AND SYSTEM FOR PROVIDING AUTOMATED
VEHICLE DIAGNOSTIC FUNCTION UTILIZING TELEMATICS UNIT

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Examiner: John H. Le

Attorney Docket No. GP-304500-OST-ALS

APPEAL BRIEF

Board of Patent Appeals and Interference
US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

The Appellant is currently appealing the remaining rejections made in the final office action dated October 16, 2006 (hereafter referred to as the "Final Office Action").

In the Final Office Action, claims 1 and 20 were rejected under 35 USC §112, second paragraph, claim 19 was rejected under 35 USC §101, and claims 1-5, 7-9 and 19-26 were rejected under 35 USC §103. Following the Final Office Action, the Appellant timely filed a Pre-Appeal Brief Request for Review. In a Notice of a Panel Decision dated May 22, 2007, the Panel withdrew the above-listed 35 USC §112 and 35 USC §101 rejections. Thus, the only rejections left standing are those pertaining to 35 USC §103, which the Appellant respectfully traverses and appeals.

(i) <u>Real Party in Interest</u>

The real party in interest is the assignee of the applicant inventor who assigned all of his right, title and interest to General Motors Corporation, a Michigan corporation, having its principal place of business at 300 Renaissance Center, Detroit, Michigan 48265-3000.

(ii) Related Appeals and Interferences

There are no other appeals and/or interferences known to Appellant, his assignee, and/or legal representatives that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(iii) Status of Claims

Claims 1-5, 7-9 and 19-26 were rejected under §103(a) in the Final Office Action and are currently being appealed. Claims 6 and 10-18 have been cancelled. The application does not contain any other claims.

(iv) Status of Amendments

No amendment to the claims has been entered subsequent to the Final Office Action.

(v) **Summary of Claimed Subject Matter**

Independent Claim 1 –

As recited in independent claim 1, the invention involves a method 300 of providing vehicle diagnostic functions within a mobile vehicle communication system 100, 200. (Figs. 1-3; page 10, lines 1-5.) In general, the method 300 comprises the following steps: a) configuring a primary diagnostic script for a telematics equipped mobile vehicle 110, 210 where the primary diagnostic script recreates known problem sequences when executed (Fig. 3, step 320; page 12, lines 14-24; page 14, line 22-page 15, line 4); b) providing the primary diagnostic script to the mobile vehicle 110, 210 (Fig. 3, step 330; page 15, lines 5-9); c) executing the primary diagnostic script (Fig. 3, step 340; page 15, lines 5-9); and d) storing diagnostic data based on the executed primary diagnostic script such that the stored diagnostic data is made available for analysis (Fig. 3, step 350; page 15, lines 9-21).

Independent Claim 19 –

As recited in independent claim 19, the invention involves a system 100, 200 for providing automated vehicle diagnostic functions. (Figs. 1-3; page 10, lines 1-5.) The system 100, 200 generally comprises: a) means 170, 270 for configuring a primary diagnostic script for a telematics equipped mobile vehicle 110, 210 where the primary diagnostic script recreates known problem sequences when executed (Fig. 3, step 320; page 12, lines 14-24; page 14, line 22-page 15, line 4); b) means 140, 142, 144 for providing the primary diagnostic script to the mobile vehicle 110, 210 (Fig. 3, step 330; page 15, lines 5-9); c) means 120, 220, 290 for executing the primary diagnostic script (Fig. 3, step 340; page 15, lines 5-9); and d) means 120, 220, 290, 170 for collecting diagnostic data based on the executed primary diagnostic script (Fig. 3, step 350; page 15, lines 9-21).

Independent Claim 20 –

As recited in independent claim 20, the invention involves a method 300 of providing vehicle diagnostic functions within a mobile vehicle communication system 100, 200. (Figs. 1-3; page 10, lines 1-5.) In general, the method 300 comprises the following steps: a) determining a primary diagnostic script for a telematics equipped mobile vehicle 110, 210 wherein the primary

diagnostic script includes a plurality of diagnostic scripts that are determined based on diagnostic options (Figs. 2-3, step 320; page 14, lines 5-13; page 14, line 22-page 15, line 4); b) providing the primary diagnostic script to the mobile vehicle 110, 210 (Fig. 3, step 330; page 15, lines 5-9); c) executing the primary diagnostic script (Fig. 3, step 340; page 15, lines 5-9); and d) storing diagnostic data based on the executed primary diagnostic script such that the stored diagnostic data is made available for analysis (Fig. 3, step 350; page 15, lines 9-21).

Although the Appellant has provided the summary of claimed subject matter with references to specific embodiments of the invention to comply with the requirements set forth in the relevant provisions of 37 C.F.R., this summary has been provided to aid the Board in evaluating the appeal and is not intended to limit the meaning or definition of any terms in the claims.

(vi) <u>Grounds of Rejection to be Reviewed on Appeal</u>

      As previously mentioned, in the Notice of a Panel Decision dated May 22, 2007, the Panel withdrew the Examiner's previous 35 USC §112 and 35 USC §101 rejections. Thus, the only issue on appeal is whether the subject matter of claims 1-5, 7-9 and 19-26 is obvious under 35 USC §103(a) in light of Marko et al. (US Patent No. 6,745,151) in view of Sonnenrein (US Patent Application Publication No. 2005/0154500) and Shirane (US Patent No. 5,491,631).

(vii) Argument

Claims 1-5, 7-9 and 19 –

Claims 1 and 19 stand rejected under 35 USC §103(a) as being unpatentable over Marko et al. (US Patent No. 6,745,151) in view of Sonnenrein (US Patent Application Publication No. 2005/0154500) and Shirane (US Patent No. 5,491,631). The Appellant respectfully traverses this rejection for at least the reasons that (1) Shirane fails to disclose or even suggest, "configuring a primary diagnostic script for a telematics equipped mobile vehicle wherein the primary diagnostic script recreates known problem sequences when executed," and (2) one of ordinary skill in the art would not arrive at the claimed invention if the teachings of these three references were to be combined.

"Configuring a primary diagnostic script [that] recreates known problem sequences" is Not Disclosed by or Obvious in view of Shirane

According to the Examiner[1], Col. 10, line 50 - Col. 11, line 14 of the Shirane patent (hereafter "the Shirane passage") *inherently discloses* "a primary diagnostic script [that] recreates known problem sequences," as called for in claims 1 and 19. The Appellant respectfully disagrees with this rejection for several reasons. First, even under the broadest reasonable interpretation of the claims, the Examiner has failed to establish a *prima facie* case that the Shirane passage teaches or renders obvious the claimed limitation of a primary diagnostic script that recreates known problem sequences. In the Final Office Action in response to Appellant pointing out that this claimed feature is not disclosed in Shirane, the Examiner stated that it *inherently discloses* a primary diagnostic script that recreates known problem sequences. Appellant disagrees.

> "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily present* in the thing described in the reference… The mere fact that a certain thing *may result from a given set of circumstances is not sufficient*."[2] (Emphasis added.)

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[1] Office Action dated April 13, 2006; page 7; Interview Summary dated March 29, 2007; page 3
[2] *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-1 (Fed. Cir. 1999)

The Examiner has not offered any reasoning or support for his contention that the claimed feature is necessarily present in the Shirane passage. When asked during a telephone interview[3] what specific part of the Shirane passage supports his finding of an inherent disclosure, the Examiner further identified Col. 10, lines 58-64 as the source. However, there is nothing in that section which even suggests, much less requires, that the vehicle be provided with a diagnostic script or program that recreates known problem sequences. Rather, as disclosed in Shirane, diagnostic programs are selected for use by the vehicle on the basis of the type of vehicle, as determined by the non-serial number portion of the vehicle identification number (VIN). As described in Shirane, a VIN includes general vehicle information such a make, model, engine type, transmission, as well as a unique serial number. Shirane's diagnostic system 2 plugs into the vehicle, obtains an ECU-ID from an electronic control unit (ECU) on the vehicle, and then uses that to lookup possible (candidate) partial VINs (see Fig. 4B) that identify the general vehicle information. The user of the diagnostic system 2 then selects the correct partial VIN and enters the serial number for that vehicle to thereby complete the VIN. Once the full VIN is confirmed by the system, it is used to lookup a pre-stored diagnostic program that is appropriate for that make, model, engine (etc.) type of vehicle. As stated in the portion noted by the Examiner, the serial number part of the VIN is not used to select a diagnostic program, but is only used after the fact when studying failure causes so that vehicle-specific considerations (e.g., repair work) can be taken into account. This is what Shirane teaches, and nowhere does it teach, suggest, or otherwise render obvious the creation and use of a diagnostic script *that recreates known problem sequences*. Thus, the Examiner has failed to establish a *prima facie* case that the Shirane passage inherently discloses or otherwise teaches or suggests the claimed subject matter.

Moreover, not only does the Shirane passage fail to disclose or render obvious the use of a primary diagnostic script that recreates known problem sequences, but as disclosed *it does not even appear to be capable of performing such a feature*. Claims 1 and 19 call for a primary diagnostic script that recreates known problem sequences when executed, which in turn can cause known undesirable vehicle system operation in similar vehicles. Put differently, the claimed method *purposely causes some type of undesirable vehicle system operation* so that the results can be observed and analyzed. The Shirane passage relied upon by the Examiner

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[3] Interview Summary dated March 29, 2007

describes a process that uses pre-stored diagnostic programs selected on the basis of the vehicle VIN, and there is no provision in the Shirane system for re-configuring those diagnostic programs, nor is there any disclosure of how one would configure new diagnostic programs to recreate known problem sequences and then provide them to the vehicle either directly or via the diagnostic system 2. Furthermore, although Shirane includes various diagnostic examples that involve placing the vehicle into a known state or carrying out a sequence of operations, those are done not to recreate known problem sequences, as claimed, but to enable proper measurement or detection of a potential fault condition.

The Combination of Marko, Sonnenrein, and Shirane does not Render Obvious the Subject Matter of Claims 1-5, 7-9, and 19

As discussed above, Shirane teaches the use of a VIN to select an appropriate diagnostic program for use in performing diagnostic operations on a particular type of vehicle. In terms of what would have been obvious to one of ordinary skill in the art, applying the teachings of Shirane to Marko and Sonnenrein would lead one to select and provide Sonnenrein's WML diagnostic scripts to the vehicle WAP terminal on the basis of VIN number, as is done in Shirane, so that the script is appropriate for the particular vehicle make, model, engine, etc. There is nothing from Shirane or the other prior art that would suggest modifying Sonnenrein's scripts to configure them to recreate known problem sequences, as recited in claims 1 and 19.

Accordingly, the Appellant requests the Board to overturn the rejection of independent claims 1 and 19, as well as dependent claims 2-5 and 7-9, each of which ultimately depends from claim 1.

Claims 4 and 23 –

Dependent claims 4 and 23 should be allowed on the basis of the independent claims from which they ultimately depend. Additionally, these two claims are separately patentable since they each call for, "…receiving a request for automated vehicle diagnostic function from a user interface; and *identifying diagnostic routines based on the received request*." (Emphasis added.) Marko teaches no such capability. In the Final Office Action, the Examiner stated that

this feature was disclosed in Marko, Col. 3., lines 52-60 (hereafter the 'first Marko passage'),[4] which states:

> The invention uses an external, centralized computational resource to analyze the data and render a diagnosis, whether by automated analysis or expert technician. The analysis can be completed using real-time data exchange with the vehicle and executing diagnostic routines as necessary to accomplish the diagnostic task. The system logs and archives all data transmitted to the central server, such as time, location, and vehicle identification numbers (VIN) along with the data captured.

The first Marko passage makes no reference whatsoever to *identifying a diagnostic routine based on a request received from a user interface,* as called for in claim 4. Instead, this passage describes a process where, presumably, diagnostic routines have already been identified and executed. Not only does the first Marko passage fail to disclose the particular claimed manner in which the diagnostic routine is identified (i.e.- based on a request received from a user interface), it does not even pertain to the broader issue of identifying or determining diagnostic routines; it pertains to the issue of how to process the data once a diagnostic routine has been executed.

For at least these reasons, the rejection of dependent claims 4 and 23 should be overturned and the claims allowed.

Claims 5 and 20-26 –

Independent claim 20 also stands rejected under 35 USC §103(a) as being unpatentable over Marko in view of Sonnenrein and Shirane. This rejection is improper because Marko fails to show determining a primary diagnostic script that "includes a *plurality of diagnostics scripts* that are determined *based on diagnostic options.*" (Emphasis added.) Turning now to the present application, an exemplary embodiment of this feature is provided:

> In one example, the advisor identifiers diagnostic routines by presenting high level questions to the client/technician and filters the answers to obtain one or more diagnostic scripts for mobile vehicle 210. The diagnostic scripts are combined to produce a primary diagnostic script and provided to mobile vehicle 210 for execution.[5]

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[4] Office Action dated October 16, 2006; page 6
[5] US Application No. 10/786,980; page 14, first full paragraph

A single primary diagnostic script can include a number of diagnostic scripts where each diagnostic script is determined based on diagnostic options, such as high level questions posed to a client or technician. Once the primary diagnostic script has been assembled together with its sub-scripts, it can be provided to the mobile vehicle.

Col. 8, lines 26-30 (hereafter the 'second Marko passage') was relied upon by the Examiner in the Final Office Action and simply states that scripted algorithms and histogram reference patterns can be updated with new or modified versions. There is nothing in the second Marko passage that states or suggests that *a single primary diagnostic script can have a plurality of diagnostic scripts*, as called for in claim 20. Likewise, Col. 7, line 66 – Col. 8, line 2 ('third Marko passage') fails to disclose determining a plurality of scripts *on the basis of diagnostic options*, as taught in the present application and recited in claim 20. In claim 20, it is clear that the diagnostic options are used in the determination of the diagnostic scripts, which in turn is used in the determination of the primary diagnostic script. The third Marko passage makes no suggestion of utilizing any types of diagnostic options in the creation of a primary diagnostic script. It simply states that data signals collected by the diagnostic module can be used as input when executing the scripted algorithms; not when creating them. For at least these reasons, the Appellant respectfully asks that the rejection of these claims be overturned and that they be allowed.

Similarly, dependent claim 5 calls for, "…determining at least one diagnostic script based on diagnostic options; and retrieving the at least one determined diagnostic script, wherein one or more diagnostic scripts are combined into the primary diagnostic script." Thus, the subject matter of this claim is separately patentable for this reasons apart from its dependence on claim 1. Thus, this rejection should be overturned and the claim allowed.

Conclusion

In view of the foregoing, Appellant requests that the rejections of all claims be overturned and the claims be held allowable.

The Commissioner is authorized to charge any fees, or refund any overpayments, associated with this Appeal Brief to Deposit Account No. 07-0960.

Respectfully submitted,

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(viii) Claims Appendix

1.   A method of providing vehicle diagnostic function within a mobile vehicle communication system, comprising:

configuring a primary diagnostic script for a telematics equipped mobile vehicle wherein the primary diagnostic script recreates known problem sequences when executed;

providing the primary diagnostic script to the mobile vehicle;

executing the primary diagnostic script; and

storing diagnostic data based on the executed primary diagnostic script such that the stored diagnostic data is made available for analysis.

2.   The method of claim 1, further comprising:

analyzing the stored diagnostic data.

3.   The method of claim 1, further comprising:

initiating the automated vehicle diagnostic function.

4.   The method of claim 3, wherein initiating the automated vehicle diagnostic function comprises:

receiving a request for automated vehicle diagnostic function from a user interface; and

identifying diagnostic routines based on the received request.

5.   The method of claim 1, wherein configuring the primary diagnostic script comprises:

        determining at least one diagnostic script based on diagnostic options; and

        retrieving the at least one determined diagnostic script, wherein one or more diagnostic

scripts are combined into the primary diagnostic script.

6.   (Cancelled)

7.   The method of claim 1, wherein the primary diagnostic script triggers data capture when

specific conditions exist.

8.   The method of claim 1, wherein storing diagnostic data based on the executed primary

diagnostic script comprises:

        receiving diagnostic data from vehicle system modules; and

        storing the received diagnostic data.

9.   The method of claim 1, wherein the diagnostic data is selected from the group consisting

of: diagnostic trouble codes.

10.-18. (Cancelled)

19.   A system for providing automated vehicle diagnostic functions, the system comprising:

        means for configuring a primary diagnostic script for a telematics equipped mobile vehicle wherein the primary diagnostic script recreates known problem sequences when executed;

        means for providing the primary diagnostic script to the mobile vehicle;

        means for executing the primary diagnostic script; and

        means for collecting diagnostic data based on the executed primary diagnostic script.

20.   A method of providing vehicle diagnostic function within a mobile vehicle communication system, comprising:

        determining a primary diagnostic script for a telematics equipped mobile vehicle wherein the primary diagnostic script includes a plurality of diagnostics scripts that are determined based on diagnostic options;

        providing the primary diagnostic script to the mobile vehicle;

        executing the primary diagnostic script; and

        storing diagnostic data based on the executed primary diagnostic script such that the stored diagnostic data is made available for analysis.

21.   The method of claim 20, further comprising:

        analyzing the stored diagnostic data.

22.   The method of claim 20, further comprising:

initiating the automated vehicle diagnostic function.

23.   The method of claim 22, wherein initiating the automated vehicle diagnostic function comprises:

        receiving a request for automated vehicle diagnostic function from a user interface; and

        identifying diagnostic routines based on the received request.

24.   The method of claim 20, wherein the primary diagnostic script triggers data capture when specific conditions exist.

25.   The method of claim 20, wherein storing diagnostic data based on the executed primary diagnostic script comprises:

        receiving diagnostic data from vehicle system modules; and

        storing the received diagnostic data.

26.   The method of claim 20, wherein the diagnostic data is selected from the group consisting of: diagnostic trouble codes.

(ix) Evidence Appendix

None.

(x) Related Proceedings Appendix

None.